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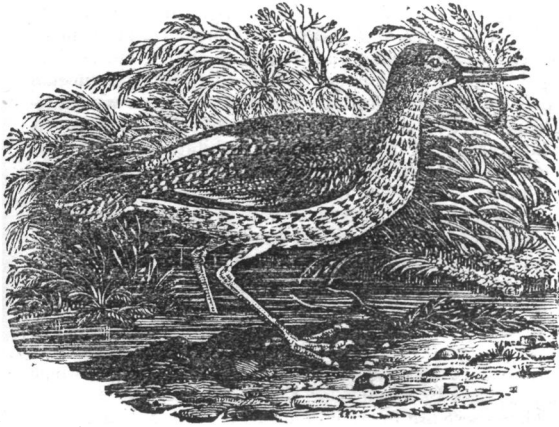
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ORNITHOLOGY.

On some of the Birds frequenting Belfast Lough.

BY JAMES D. MARSHALL, ESQ., M. D.

Of the Genus *Totanus*, or sandpiper, four species have been found in our immediate vicinity, viz:—the redshank sandpiper, green sandpiper, common sandpiper, and green-shank.

REDSHANK SANDPIPER.—(*Totanus Calidris*.)

This delicate, pretty-looking bird, commonly known by the name of redshank, is a constant resident in this part of the country, and except during one or two of the summer months, is always met with on the shores of our bay.

It is one of our commonest species, and any one accustomed to stroll along the shore can scarcely have failed to notice it. Its shrill, piping cry is uttered immediately on taking flight, and the alarm it sounds is so well known to the other species in its vicinity, that the flight becomes general, and the sportsman, with all his caution, is generally outwitted by this wary bird. I have pursued a flock of them for hours round the shores of Island Magee, without being able to approach within gunshot. They collect on the projecting rocky extremities of the small bays, and these are so situated, that the birds cannot fail to notice any attempt made to obtain a nearer inspection of them. There is no lurking place for the fowler, and after following his game from rock to rock, he may be obliged to return fatigued and disappointed.

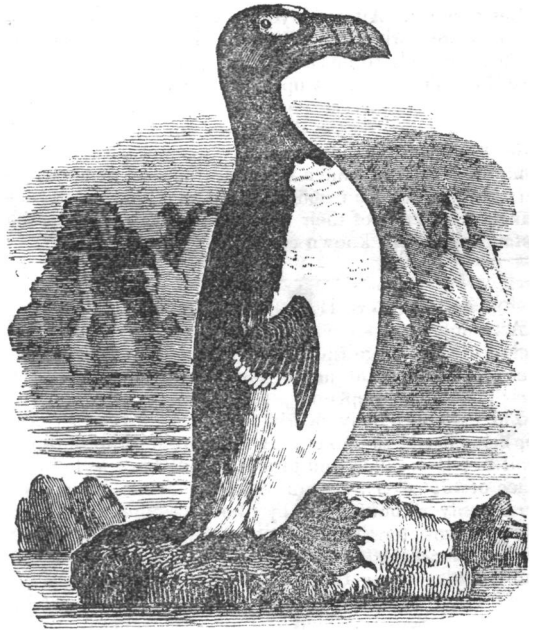
Bewick says, "that the redshank is usually found solitary or in pairs;" and in those places where he had opportunities of observing it, this may be perfectly correct, but I should certainly say, that in all the parts of Ireland where I have observed it, I have almost invariably noticed it in flocks, seldom fewer in number than six, and frequently amounting to one or two hundred.

During winter they congregate in large flocks—in spring they separate into smaller ones, and finally into pairs ere they retire to their breeding haunts. About August, however, they are again found united on the shores, having left their summer retreats in company with their respective families. At this season they are generally much tamer than usual, many of them having been only a few weeks excluded from the shell, and consequently totally unaccustomed to the sight of man.

The difference in the plumage of the old and young birds, although not great, has been such as to induce ornithological writers of no ordinary rank, to class the redshank not only under different species, but even as appertaining to different genera. It has been ranged among the woodcock and snipe, under the name of *Scolopax Calidris*, and in other works, *Tringa Gambetta* and *Tringa Striata*. This is only one of the many instances of subdivision of genera and species resorted to by authors, who either had not the opportunities or inclination to investigate the subject. Statements were taken for granted as correct, merely from want of making the proper inquiries, or bestowing on it the necessary portion of time and labour.

The food of the redshank is the same as that of the other waders, univalve and bivalve mollusca, with worms and insects of various kinds. When in search of food they usually gather round a small pool of water left on the bank by the retiring tide, and wading through it, they pick up whatever attracts their notice.

Though I have mentioned this bird as being extremely wary and difficult of approach, yet it may be brought near by imitating its cry or whistle. I have seen a flock of at least two hundred redshanks, which were so wild as to exclude the possibility of bringing the gun to bear on them, brought within twenty yards of the sportsman in consequence of the correct manner in which he imitated their cry. The call must be repeated, as nearly resembling that of the birds as possible; and when their answer has been returned, the conversation, if I may so term it, must be kept up until they have been brought within the necessary distance.



NORTHERN PENGUIN, OR GAIR-FOWL.—(Le Grand Pinguin.)—Buffon.

The length of this bird, to the end of the toes, is three feet. The bill is black, and four inches and a quarter long; both mandibles are crossed obliquely with several ridges and furrows, which meet at the edges. Two oval-shaped white spots occupy nearly the whole space between the bill and the eyes: the head, back part of the neck, and all the upper parts of the body and wings are covered with short, soft, glossy black feathers, excepting a white stroke across the wings, formed by the tips of the lesser quills: the whole under side of the body is white: the wings are very short, not exceeding four inches and a quarter, from the tips of the longest quill-feathers to the first joint: legs black, short, and placed near the vent.

From the inability of these birds to fly or walk, they are seldom seen out of the water, and it is remarked by seamen, that they never wander beyond soundings. The female lays only one egg, which she deposits and hatches on a ledge close to the sea-mark: it is of a very large size, being about six inches in length, of a white colour, streaked with lines of a purple cast, and blotched with dark rusty spots at the thicker end.

This species is not numerous any where; it inhabits Norway, Iceland, the Ferro Isles, Greenland, and other cold regions of the north, but is seldom seen on the British shores.

At a meeting of the London Zoological Society, held during the last month, Mr. G. Bennett read a note on the habits of the King Penguin *Aptenodytes Patagonica* (Gmel.), as observed by him on various occasions when in high

southern latitudes. He described particularly a colony of these birds, which covers an extent of thirty or forty acres at the north end of the Macquarrie Island, in the South Pacific Ocean. The number of penguins collected together in this spot is immense; but it would be almost impossible to guess at it with any near approach to truth, as during the whole of the day and night, thirty or forty thousand of them are continually landing, and an equal number going to sea. They are arranged, when on shore, in as compact a manner, and in as regular ranks, as a regiment of soldiers; and are classed with the greatest order, the young birds being in one situation, the moulting birds in another, the sitting hens in a third, the clean birds in a fourth, &c.; and so strictly do birds in similar condition congregate, that should a bird that is moulting intrude itself upon those which are clean, it is immediately ejected from among them. The females hatch the eggs by keeping them close between their thighs; and, if approached during the time of incubation, move away, carrying the eggs with them. At this period the male bird goes to sea and collects food for the female, which becomes very fat. After the young is hatched, both parents go to sea and bring home food for it; it soon becomes so fat as scarcely to be able to walk, the old birds getting very thin. They sit quite upright in their roosting places, and walk in the erect position until they arrive at the beach, when they throw themselves on their breasts, in order to encounter the very heavy sea met with at their landing-place. Although the appearance of penguins generally indicates the neighbourhood of land, several instances were cited of their occurrence at a considerable distance from any known country.

SIMPLE SCIENCE—ASTRONOMY.

Astronomy is a knowledge of the heavenly bodies with regard to their magnitudes, motions and distances, whether real or apparent, and of the natural causes on which their phenomena depend.

The earth is a body, nearly circular, but not perfectly so, being flat at the poles. It moves round the sun in an orbit nearly circular, and in motion nearly equable in the space of $365^{\circ} 6' 9'' 11''$; and that the motion is not equable is easily accounted for by the attraction to the sun becoming greater the nearer it goes to it in its opaque orbit. The diameter of the earth is eight thousand miles, and it moves at the rate of nineteen miles in one second. The motion of the moon through the heavens, as well as her appearances at different times, are exceedingly remarkable. When she first becomes visible, at the time she is called new moon, she appears at the western part of the heavens, and seems to be at no great distance from the sun himself: every night she not only increases in size, but moves farther from the sun, until at last she appears in the eastern part of the horizon, just as the sun disappears in the western. After this she gradually moves farther and farther eastward; and, therefore rises every night later and later, until at last she appears to approach the sun as nearly in the east as she did in the west, and rises only a little before him in the morning, as in the first part of her course she set in the west not long after him. All these different appearances are completed in the space of a month, after which they begin in the same order as before.

The periodic time, that is, the time it takes to complete its revolution round the earth, is $27^{\circ} 7' 43''$: and it is carried with the earth in its annual motion round the sun. The moon is not a planet, but only a satellite or attendant on the earth. Her diameter is two thousand miles, and her distance from the earth's centre two hundred and forty thousand miles; and she moves two thousand two hundred and ninety miles in one hour, and turns round her axes exactly in the time that she goes round the earth, which is the reason that she keeps always the same side towards us. The phases of the moon are particularly interesting. They prove it to be a spherical body, illuminated by the sun; therefore whilst that half of her which is towards the sun is enlightened, the other half is of course dark and invisible; hence she disappears when in conjunction or between us and the sun, because her

dark side is then towards us: when she is gone a little way forward, we see a little of her enlightened side—a crescent—which is our new moon, which still increases to our view as she advances forward, until she becomes in opposition, (i. e. opposite to the sun,) and then her whole enlightened side is towards the earth, and she appears with a round illumined orb, which we call full moon. The moon has scarce any difference of season, her axis being almost perpendicular to the ecliptic: what is very singular, one half of her has no darkness at all—the earth constantly affording her a strong light in the sun's absence; while the other half has a fortnight light and a fortnight's darkness by turns. Our earth is thought to be a moon to our moon; waxing and waning regularly, but appearing thirteen times as large, and affording thirteen times as much light as she does us. Viewing the moon with a telescope, several curious phenomena offer themselves. A great variety of appearances is exhibited on her disc; there are spots differing very considerably in degrees of brightness. Many of the dark ones must necessarily be excavations on the surface, or valleys between mountains, from the circumstance of the shades of light which they exhibit. There is no reason to suppose that there is any large collection of water in the moon, for if there were, when the boundary of light and darkness passes through it, it must necessarily exhibit a regular curve, which is never observed. It is also probable, from the circumstance of no change being observed on her surface, such as would be produced by vapours or clouds.

That there are lunar mountains is strikingly apparent, by a variety of bright detached spots, almost always to be seen on the dark part, near the separation of light and darkness; these are tops of eminences enlightened by the sun, while their lower parts are in darkness; but sometimes light spots have been seen at such a distance from the bright part that they could not arise from the light of the sun. Doctor Herschell supposes these to be volcanoes—he measured the diameter of one and found it four miles.

Many astronomers formerly denied the existence of an atmosphere at the moon, principally from observing no variation of appearance on the surface, like what would take place did clouds exist, as with us; and also from observing no change in the light of the fixed stars on the approach of the dark edge of the moon; but astronomers now seem agreed that an atmosphere does surround her, although of exceedingly small density when compared with that of our earth. It has been measured by the parallax to be one thousand times rarer than ours, in which atmosphere the inhabitants of this earth could not live many seconds.

The cause of the tides is, the orb of the attracting power, which is in the moon, is extended as far as the earth, and draws the waters, acting upon places where it is vertical—insensibly on confined seas and bays, but sensibly on the ocean, whose beds are large, and when the waters have the liberty of reciprocation, that is of rising and falling—and the presence of the moon occasions an impulse which causes another in her absence. The sun's influence in raising the tides is but small in comparison to the moon's; for though the earth's diameter bears a considerable proportion to his distance from the moon, it is next to nothing when compared to its distance from the sun; and therefore the difference of the sun's attraction on the sides of the earth under and opposite to him, is much less than the difference of the moon's attraction on the sides under and opposite to her; and therefore the moon must raise the tides much higher than they can be raised by the sun.

The diameter of the sun is about 888,000 miles, and its distance from the earth 96,000,000 miles. It moves round its axis in $25^{\circ} 10'$, and though to human eyes so extremely bright and splendid, it is yet observed, even through telescopes of but very small power, to have dark spots on his surface of various dimensions; one observed by Dr. Herschell was thirty thousand miles in diameter.—Every spot, if it continues long enough without being dissolved, appears to enter the sun's disc on the east side, and to go from thence with a velocity continually increasing, till it has gone half its way, and then to move slower